Making the Most of Your Data: Embedding Business Intelligence into Daily Operations

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Making the Most of Your Data: Embedding Business Intelligence into Daily Operations

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Abstract

Increasingly under pressure to demonstrate their value in relation to the objectives of the institution or consortium, libraries are looking for ever more creative ways to improve efficiency and productivity and expand their services. Powerful analytic capabilities enable libraries to put numbers on their value and to expose tangible evidence of their leading role in the academic lifecycle. From usage data and onwards, analytics shed light on the inner workings of the entire institution, as well as those of the library. Valuable insight into libraries' operation can be gained via purchasing trends, comparative analysis, and even predictive analysis—helping managers to better plan their daily operation. During this session, we will review Virginia Commonwealth University's strategy to leverage library data and integrate it seamlessly into day-to-day workflows.

Virginia Commonwealth University Libraries has been adopting a number of analytic strategies to demonstrate value, measure success, and inform decisions. This includes three primary initiatives: dashboarding of key metrics; analytics of user interfaces; and adoption of Alma, Ex Libris' next-generation library services framework.

Dashboarding initiatives have been two-fold: staff and public. For staff, we have consolidated access to key statistics onto core webpages. This simple project of collecting statistical access points reveals the wide variety of data and sources. From gate counts to service desk transactions to individual system statistics, it is both an impressive and overwhelming array of data from at least 14 disparate sources. In addition, we also compile and archive yearly statistics for ASERL, AAHSL, IPEDS, and local university requirements. Other libraries have pursued more in-depth staff dashboarding and/or datamarts by consolidating external data into a central source.[1]

We have also been discussing a dashboard of key library measures to be made available on our website for our various constituents including students, faculty, donors, and university administrators. While we have not yet released this, the planning and prototypes have focused our thinking and raised a number of questions. First, how many and what measures are truly meaningful to our public? Should there be different views for different audiences? How much value is there in having the data available in real time? In selecting a specific measure, are we willing to publish potentially negative trends? Our test dashboard is winnowed down to annual statistics for 12 measures in the three categories of Collections, Collection Use, and Library Use. Data is not dynamic but compiled into Google Spreadsheets and then displayed to the web through JavaScript, CSS, and Google Chart APIs. The proposed architecture would certainly not be scalable without staffing to populate the underlying spreadsheets. It is, however,

[1] Such libraries include Notre Dame, Brown, and NYU Health Sciences Libraries. See Morton-Owens, E., & Hanson, K. L. (2012). Trends at a Glance: Management Dashboard of Library Statistics. *Information Technology and Libraries*, for a recent discussion of NYU Health Sciences' Libraries' management data dashboard.

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illustrative of the types of planning by audience and purpose that must inform successful analytics initiatives.

A second major initiative is leveraging analytics to help inform design decisions about user interfaces. In addition to many of the standard tools such as Google Analytics, one of the more interesting projects has been the use of heat maps. Using a subscription to CrazyEgg (http://crazyegg.com) we have been able to selectively run heat map sessions on various parts of the VCU Libraries website. Heat maps give a graphical representation of what parts of a webpage are garnering the most hits. Analytic options also exist for advanced filters, such as location. The use of this tool was especially effective in the recent website redesign of the Tompkins-McCaw Library for the Health Sciences. In addition, heat maps have also been run on the VCU Libraries discovery tool, Primo. Again, this graphical representation gives immediate analytic insight that is difficult to come by with raw numbers. Some of the patterns that emerged were which facets were most popular, how often users go beyond the first page of results, and how users search by time of day.

These forays into interface analytics are certainly elemental compared with Internet giants such as Google or Amazon. These companies are constantly running analytics that result in an ever-evolving interface. They often use an A/B testing methodology where users may see one of two versions of an interface (for example font size) without ever knowing they are part of a usability study.[2] Would libraries ever embrace such live, ongoing testing of user interfaces or does this go against predisposed attitudes of consistent presentations or local control? Certainly with more and more resources moving to the cloud, there is an opportunity to harvest and use this type of data at a macro-level. Would libraries consult this data if provided by a vendor in their own local design decisions? For example, data might clearly show that facet position is best on the left or right, tabs better than drop downs, and so forth.

Ex Libris has already started to mine and leverage usage data obtained from hundreds of research libraries and other institutions around the world. Based on initial research by the Los Alamos National Lab and patent-pending technology, the bX suite of services leverages usage data from SFX and other link resolvers to provide an article recommender service as well as the new Hot Articles and Scholar Rank services. These services use analytics and data-mining of raw usage data to enrich and expand the researcher's discovery experience as well as expose patterns and associations across topics, authors and articles. At VCU, we integrate the bX recommender services into our Primo discovery tool and expect to take advantage of other usage-based analytic services from Ex Libris in the future.

A final area where data is driving the bus at VCU Libraries is in the decision to become an early adopter of Alma. The integration and design of analytics was one of the key selling points. With a number of traditional silos collapsed into one cloud-based system, it is likewise possible to reduce the number of places one has to go for data. Built on ORACLE Business Intelligence, Alma Analytics provides a number of different views for users. At the daily functional level, dashboards can be customized and placed on the home screen of users and managers so that the first thing they see when logging into the system is a customized graph or chart specific to their work assignment. In addition Alma Analytics provides scheduling of reports that can be pushed out regularly to various decision makers.

[2] A good overview of this process is found in Brian Christian's "The A/B Test: inside the Technology That's Changing the Rules of Business," *Wired Magazine*, April 25, 2012, http://www.wired.com/business/2012/04/ff_abtesting/2/. In addition to the survey of current business practices at large Internet firms, Christian cites data as an interface design cure to the humorous acronym of HiPPO (Highest Paid Person's Opinion).

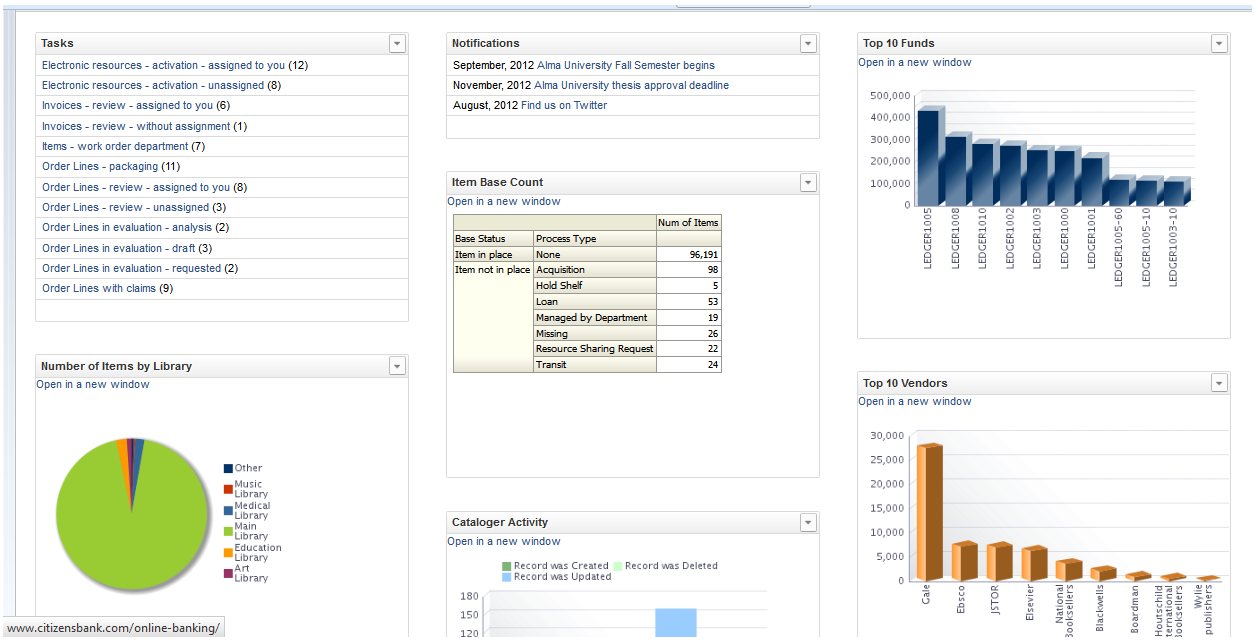

Figure 1. Alma Dashboard

Figure 1 shows an example of an Alma dashboard incorporating a number of outputs from Alma Analytics.

Presenting data from analytics to the librarian immediately upon logging into Alma ensures that the metrics which the library has agreed upon are most important are visible and top of mind.

In addition, because Alma is a cloud-based service, report templates created by one customer can be shared with others. This allows, for example, all Alma customers to use the same standard reporting tools for their annual submission of reports to various associations and membership organizations. We expect that as the Alma customer community grows, we will no longer be generating separate and individual reports but working as a community to evolve the important metrics and analytics we know we need to demonstrate the value of our services and programs.

Another advantage of the cloud environment of Alma is the ability to provide comparative analyses across Alma libraries. We expect that we'll be able to look at activity and usage at peer institutions in the future and evaluate services against those of comparable institutions.

Because Alma unifies management across print, electronic, and digital resources, we are also able to develop comparative analytics across our entire library inventory. We can begin to understand usage not only of print but also of our electronic resources through the integration of USTAT in Alma. And, that holy grail for many e-resource librarians is within our grasp as we'll be able not only to see usage but usage and cost information.

One of the most important aspects of our interest in a data-driven environment at VCU is to focus on predictive analytics. With Alma, we expect over time to be able to understand not only what we are doing well, but what we are not doing well and create true feedback into improving services for our users in ways that clearly demonstrate the value of our libraries and our librarians.